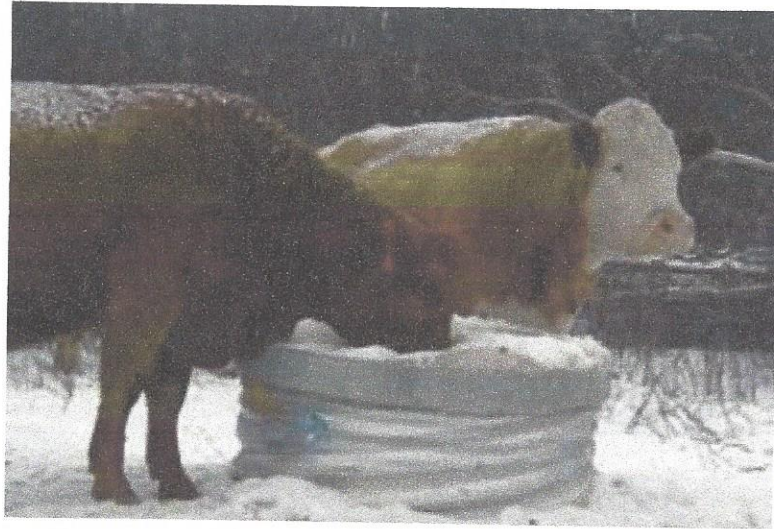


Geothermal Ice-free Waterer

Concept: Cattle drink water out of the top of an insulated galvanized tube which contains about 500 gallons (2,300 litres) of water. The water is kept warm from geothermal heat and the latent heat contained within the water itself.

Process: Cattle drink directly out of a drinking tube located at the top of the four-foot (1.2-metre) diameter insulated galvanized culvert. The culvert is 10-feet (3-metres) tall with eight feet (2.4-metres) below ground level. The latent warmth of the water keeps the small diameter drinking tube free of ice even in cold weather. The water supply pipe enters the bottom of the culvert below the frost line, and comes up the middle of the culvert to be controlled with a float valve under an insulated lid. Water height is set by a float valve which needs to be within three to five inches (7.6 to 12.7 centimetres) of the top of the culvert so that cattle can easily reach the water.

Limitations: The geothermal ice-free waterer is a new innovation but has proven itself on several farms in the Interlake region of the province. The largest limitation is that under exceptionally cold weather, the drinking tube may develop an ice plug in the drinking hole which needs to be cleared. This situation may occur a few days each winter.



Manitoba experience: These units work well with minimal management and are ideal for long-run underground water supply pipelines. In some situations, deep pipelines have been installed running over one mile (1.61 kilometres) from the water supply. The major advantage of these units is that once they are set up, there is nearly no cost of upkeep and no electricity bills or heaters required to keep the water clear of ice. These units can also be adapted to DC-powered deep well pumps and drilled well situations with little modification.

Major Components

1. float valve and float
2. drinking tube
3. polyurathane spray on insulation
4. galvanized culvert
5. supply line 40 PSI
6. frost-limiting Styrofoam

Geothermal Ice Free Waterer

